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No. 25.

HONG KONG.

BUBONIC PLAGUE.

MEMORANDUM ON THE TREATMENT OF PATIENTS
IN THEIR OWN HOMES AND IN
LOCAL HOSPITALS.

Presented to both Houses of Parliament by Command of His Majesty.
December, 1903.



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MEMORANDUM ON THE TREATMENT OF PATIENTS IN
THEIR OWN HOMES AND IN LOCAL HOSPITALS.

I.

GOVERNOR SIR H. A. BLAKE to MR. CHAMBERLAIN.

Government House,
Hong Kong,
21st August, 1903.

SIR,

Referring to my despatches mentioned in the margin* I have the honour to enclose for your information an account of an experiment on the same subject, the reasons for which, and the results, are set forth in the Memorandum. On the 3rd instant I handed back the charge of this experimental block to the Sanitary Authorities, who will, I hope, be able to secure the extension of the system of co-operation that has been adopted in this district at my request.

2. My hypothesis in paragraph 23 may not bear the light of scientific investigation, and, as the hypothesis of a layman, may not carry much weight, but I venture to submit that it is worthy of scientific inquiry, for while a timely glass of water may prevent a great conflagration, and plague at its first introduction may be stamped out by immediate segregation, and thorough disinfection, its endemicity once established this is no longer practicable, and if the hypothesis of chronic or dormant plague in man be ultimately proved to be correct, it is difficult to see how quarantine for even ten days can prevent its annual recurrence, or how any practicable examination of departing passengers can prevent its export from the plague centre and possible dissemination elsewhere if suitable conditions for its propagation be present. What the remedy or what the necessary precaution I leave it for scientific men to determine, but if my hypothesis results in a wider radius of investigation the experiment will not have been useless.

I have, &c.,

HENRY A. BLAKE,
Governor.

* Not printed.

MEMORANDUM.

The following is the result of an experiment undertaken by me to ascertain how far it might be possible to enlist the co-operation of the Chinese inhabitants in the endeavour to deal with annually recurring epidemics of plague.

2. To understand the reasons that impelled me to undertake this work, it is necessary to remember that for ten years Hong Kong has been scourged by this disease; that no efforts of sanitation have so far decreased its incidence or diminished its virulence; and that the proportion of cases found "dumped" in the streets or on the hillsides increased from 25·1 per cent. in 1898 to 32·7 per cent. in the present year.

3. The increase in the practice of thus depositing dead bodies I attribute to the dread of the disinfecting process as carried out by the Sanitary Authorities. The process is explained as follows in the Memorandum drawn up in June, 1900, by the Medical Officer of Health:—

"Disinfection of infected premises.—This is carried out by a European officer, assisted by eight coloured foremen, a Chinese foreman, and a varying number of coolies. As soon as it is known that a case of the disease has occurred at any house, a Chinese constable is sent from the nearest police station to detain all persons found therein (Bye-law 22, Ordinance 15 of 1894), and the officer in charge of the disinfection proceeds to the house to ascertain how many persons are detained there. He then procures, either from the matshed at Praya East or from the Disinfecting Station, as many suits of Government clothing as are needed for the persons so detained, and, having thus provided these persons with clothing, he removes their own clothing, bedding, curtains, and carpets to the Steam Disinfecting Station, the clothing being tied up in sheets, dipped in a solution of Jeyes's fluid, and conveyed through the streets in baskets; persons who are able to obtain new or clean clothing from some uninfected premises are, however, not detained after they have discarded their infected clothing and handed it to the Inspector for disinfection. New goods, silk clothing which has not been recently worn, furs and leather goods are not removed to the Steam Disinfector, but must, as a general rule, remain on the premises until they have been fumigated. When the clothing, &c., is returned (in the course of some two hours) from the Disinfecting Station, the persons who have been detained are required to put on their own clothing, and must then leave the premises for some five or six hours while it is disinfected and cleansed. The Government

clothing is returned to the Disinfecting Station to be steamed before it is again used. The people so displaced from their homes are at liberty to make use of the Board's matshed shelters until the processes of disinfection of the premises are complete.

"The disinfection of the premises consists in the spraying of the walls with a solution of perchloride of mercury (1 in 1,000) or fumigation with free chlorine obtained by the addition of diluted sulphuric acid to chlorinated lime (1 quart of a 1 in 8 solution of the acid to each lb. of the chlorinated lime). Floors and furniture are then scrubbed with solution of Jeyes's fluid, and the walls are then lime-washed, chlorinated lime being added to the lime-wash in the proportion of $\frac{1}{2}$ lb. to the gallon."

It will be observed that on receipt of information of the death of a person a policeman is at once placed in charge of the house, and all the inmates found therein are detained until their clothes are disinfected. This detention may be for 24 hours; but in many cases it may be for 48 hours, as if the body is removed to the mortuary after the Government officer engaged in examination of bodies received has left for the day, no report can be received until after the examination of the bodies next day. The house is then disinfected by scrubbing the furniture and spraying the walls, while the clothing is sent to the Disinfecting Station.

The Medical Officer of Health mentions two hours as the time in which the clothing may be expected to be returned. I have visited the Disinfecting Station and seen the process carried out. Bedding, clothing, and other belongings, shoes, umbrellas, &c., &c., are placed in large cradles and run into the disinfector on a small tramway. It takes on an average one hour to disinfect each charge, which can hardly comprise more than the contents of a floor, but when the epidemic is at its height, with possibly the contents of twenty to thirty houses to be disinfected, it will be seen that the estimate of the time that elapses before the return of the clothing is much under the mark. In the meantime the inmates of the houses are perforce idle, and the loss of a day's or perhaps two days' work to the average coolie is not a light matter. Complaints were made that in the process of disinfection much injury was done to the belongings of the people, and it was whispered that squeezes were extracted by the coolies engaged in disinfection under the threat of injuring furniture and other belongings in the process of disinfection, if money were not paid. This was a matter that no amount of supervision by the Inspector could control, and the Chinese were afraid to come forward and complain openly. There is absolutely no proof that this assertion is true, but there is no doubt that the feeling existed and helped to intensify the dread of the operations of the Sanitary Authorities.

4. To allay this feeling I had a meeting of the Principal Civil Medical Officer, the Acting Medical Officer of Health, and the Chinese members of the Sanitary Board, and arranged with them that in each health district the inhabitants should appoint a *Kai-fong* or committee, and that in every case of disinfection notice should be sent to the *Kai-fong*, two members of which, with the Sanitary Inspectors should form a committee to appraise there and then any damage done and give a joint certificate of the amount, which the Sanitary Board undertook to pay. It was also announced by leaflets distributed among the Chinese that in all cases where sickness was timely reported, all the expense of disinfection would be borne by the Government.

5. This had no appreciable effect in diminishing the number of dumped bodies, and it was evident that the passive resistance of the Chinese continued. This was shown by the fact that when rat traps were set in Chinese houses the traps were found to be sprung, as the finding of an infected rat resulted in the same inconvenience as followed the discovery of a case of plague; still, large numbers of rats were delivered to the mortuary for examination, 88,862 having been paid for from 1st January to 13th of July this year, of which 3,476, or 3·9 per cent. were found to be infected. Each rat had a label attached showing the house or place where found, and where the address of a house was given that house was duly disinfected. Again, I heard whispers, of which no proof could be given, that the rat catchers levied a respectable toll by hinting at the probability of a plague rat being found about the premises in the absence of a tangible evidence of goodwill, and, on at least one occasion, indignant protest was made by the householder subjected to disinfection that no rat had been caught in his house and no trap had been set there. About a fortnight ago colour was given to these whispers. I had requested that certain experiments, of which I shall speak later, should be carried out with rats, but although two thousand rats per week were being returned and paid for, Dr. Hunter, the Government Bacteriologist, found a difficulty in obtaining the live rats that he required. This probably aroused suspicions, and resulted in the following minutes of the Acting Medical Officer of Health:—

“SECRETARY,

“I believe I am right in saying that, at the Confidential Meeting of the Board held on June 30th, a resolution was passed to the effect that the Government should be asked to sanction for the rest of the year, the modification of the scheme for dealing with rats suggested for next year's procedure. For information of the Government it may be well to explain that the reasons for this change are as follows:—

“1. A large sum of money is now paid in bonus for rats collected in the streets.

- “2. A ridiculously small number of rats are caught in houses.
- “3. There is no way at present of making sure that the addresses given of rats caught are correct, as foremen and coolies are not to be trusted. In support of this I may mention that Inspector Allen found some little time since a group of rat-catchers sorting out rats in a back lane and putting on address tickets promiscuously.
- “4. There is a suspicion that the coolies have given wrong addresses out of revenge in order that a house might be disinfected. It has not been possible to prove this, but it is clear that this might be done.
- “5. The bonus of five cents for each rat is probably the incentive to the importation of rats. It is highly probable that a brisk trade in rats has been going on. It would no doubt pay to bring rats into the city from outlying villages and from boats and even from Macao and Canton. Inspector Reidie has reported that he heard of a meeting of rat-catchers at Possession Point where rats arrived in parcels and were distributed. He was too late to catch them, but these rumours have the colour of truth.

“The proposal to adopt next year's scheme in the matter at once will involve (1) the immediate appointment of six extra Portuguese foremen at \$50, one for each Plague Inspector; (2) the raising into line with this the salary of the present permanent plague foremen; and (3) the appointment of 14 coolies for collecting rats at a fixed salary of \$12 per month; (4) the abolition of the bonus.

“W. P.”

6. In the meantime it appeared to me that however theoretically perfect our sanitary machinery, we were not controlling the epidemic, which in this year as in all that had gone before, was running precisely the same course as in Canton and the coast ports: appearing, increasing, culminating, and disappearing, at the same time. To those who know how Chinese houses are constructed it will be apparent that effective fumigation is practically unattainable. While even if the spraying process, scrubbing, and disinfection of clothing reached externally every thing in the room, it would not kill vermin lying deep in the joints and cracks of tables, chairs and settles, or beds. Nor would it reach the vermin with which the heads of the poorer classes of coolies are infested. But apart from this, what took place in many cases when a case of plague was discovered was that before the constable could arrive to take charge of the house, goods liable to injury by disinfection were removed, by the door, or if too late for this, were taken on to the roof, always easily accessible, and deposited in some neighbouring house.

7. The question then presented itself whether the passive resistance of the population to disinfection might not be overcome and whether if the Chinese could be brought to realize the necessity for it, their attitude might not be entirely changed. The East finds great difficulty in seeing eye to eye with the West. But the Chinese are a reasonable people; they are accustomed to have Government orders explained to them, and even Imperial edicts always contain the reason for their issue, as our own laws down to a late period embodied the reason for the Act in the preamble. I determined to make the attempt, feeling it my duty to exercise directly any personal influence that I might possess to assuage the growing feeling of antagonism to the Sanitary Authorities and induce the people to take upon themselves the active participation in the work of sanitation.

8. Early in April I broached the matter to Dr. Atkinson, the Principal Civil Medical Officer and President of the Sanitary Board, and proposed to him that the Sanitary Board should hand over to me a district of the most plague stricken portion of the city of Victoria of an area sufficiently large to give a practical basis of comparison of results but not too large for my personal supervision. He consulted the members of the Board and obtained their assent, and after consultation with the Acting Medical Officer of Health he suggested that I should take over a block bounded on the north by Second Street and on the south by Third Street with the Wai On and Sheung Fung Lanes lying between. The block thus handed over comprised the houses on the south side of Second Street and on the north side of Third Street. These streets have an evil record in every epidemic of plague since 1894. They are inhabited by very poor people, but the houses themselves are by no means the worst in the city. Second Street is 30 feet wide, while the houses being three-storied averaged about 30 feet in height, and 45 feet in depth, the open area in rear being from 76 to 122 square feet. Third Street is about 35 feet wide, the houses, generally two-storied, averaging 20 feet in height with a depth of 40 to 45 feet and open spaces in rear of from 40 to 68 feet.

9. The return of the dimensions of the floors in which plague occurred shows that the cubic air space per head of the inhabitants fell far short of the requirement of 550 feet under the Public Health and Buildings Ordinance.

10. On the 13th April, I proceeded to the district accompanied by the Principal Civil Medical Officer, the Medical Officer of Health, the Director of Public Works, the Hon. Ho Kai, M.B., C.M.G., and Mr. Fung Wa Chün, a Member of the Sanitary Board, and, collecting the people, I told them, through the Chinese gentlemen present, that the Sanitary Board had offered no objection to my trying how far they would be prepared to help themselves and assist the Government in carrying out

the necessary measures. I emphasised the necessity of personal cleanliness and the destruction of vermin in their houses, and undertook that, if they would give timely notice of sickness, they could be attended by either European or Chinese doctors, whichever they elected, at their own houses. To enable them to clean their houses and themselves I proposed to erect tanks for boiling water and Jeyes's fluid into which their bed boards and most of their simple furniture could be dipped, and to supply wash-houses in which both sexes could have a supply of hot water for washing purposes. To carry out these proposals I asked the people to form a *Kai-fong*, or committee who would assist by their supervision. The *Kai-fong* is a Chinese institution in every Chinese town, each street or ward having its *Kai-fong* formed of men of consideration among the inhabitants. Fifteen people at once came forward, to whom five were added on taking over the further block of houses comprising the north side of Second Street and south side of Third Street, a month later, at the earnest request of the inhabitants. The list of the *Kai-fong* given in the report of Inspector Gidley shows the class of the leading inhabitants of these streets. I may say that I am entirely satisfied with the work done by them. They disseminated my views as to cleansing operations, and assisted by their personal efforts in seeing that they were carried out. They reported cases of sickness, and at every visit to the district all who were not away at their work were ready to accompany me and show me what had been done.

11. By the 20th April, the six houses selected were prepared as wash-houses—four for men and two for women—and three large tanks were erected of the dimensions given by Inspector Gidley to enable the bed boards and furniture to be immersed in boiling water. To exercise a supervision over all the operations I obtained the services of this Inspector who had in the epidemic of 1894 done excellent service, who speaks Cantonese like a native, and who enjoys the confidence of the Chinese. I cannot speak too highly of the manner in which he has done the work for which he so readily volunteered, and without him there would have been great difficulty in carrying out the experiment. Mr. Fung Wa Chün took a very active interest in the work. He accompanied me several times to the district and inspected the hospital, and he gave directions to a Chinese doctor of the Tung Wa Hospital to visit the district three times daily in case his services should be required. Doctors Atkinson and Pearse also visited the district and examined the cases then under treatment by Chinese doctors, while, on the 9th May a Chinese gentleman, Mr. Ho Kom Tung, wrote to Inspector Gidley enclosing two hundred dollars with the request that the money should be used to succour the families reduced to straitened circumstances by the death from plague of those on whom they were dependent. The houses required for bath-houses were evacuated without a murmur. The immediate

landlords were among the inhabitants of the district, and the letter, of which I attach a copy, shows the spirit in which they met the inquiry of Mr. Fung Wa Chün for particulars of rent payable. The landlords of the six houses first taken for bath-houses on being asked by me what would be the rent for two months, answered, "for such a purpose, nothing."

12. The people were left free to choose their own doctors, but were offered the services of either European or Chinese medical men, the services of the Tung Wa Hospital doctor being given gratuitously, while outside practitioners were engaged by the people on the Chinese principle of "no cure, no fee," the honorarium in case of recovery being about twenty-five dollars. I may add that Dr. Atkinson obtained the prescriptions of the Chinese practitioner who successfully treated one case, of which on examination he expressed approval.

13. My object was (1) to endeavour to secure the cleanliness of house and person—that must in any case be beneficial; (2) to induce the people to undertake this work themselves; (3) to put a stop to the dumping of dead bodies, by removing the dread of disinfection by the coolies of the Sanitary Department; (4) to induce the people to give notice of sickness. Inspector Gidley's report (Appendix A.) will show how far these efforts have been successful. It will be observed that in cases where death had occurred the people destroyed or disinfected bed and clothing of deceased, cleaned the house, and remained. In cases of illness we at first removed the inmates, who in case of the death of the patient returned to the house as soon as it had been cleansed. In no case was there any plague developed among these "contacts" after the ordinary period of incubation; for instance, in five cases occurring among the inmates of No. 4 Sheung Fung Lane they were all developed within five days of the date of the first seizure reported. The return of cases attached to Inspector Gidley's report shows that in 41 cases, apart from those reported dead, eight were reported at once,

9 after one day's illness,
7 after two days,
1 after three days,
2 after five days,
3 after six days,
1 after seven days.

Considering the reluctance of the Chinese to speak of illness, the return speaks well for the efficiency of supervision by the *Kai-fong* and the readiness of the people to co-operate with the efforts to assist them.

14. Having got the tanks in order the whole district was systematically taken house by house, the occupants bringing their bed boards and mats, their settles, and any furniture that could be immersed, to be dipped in the boiling water for a few minutes and thoroughly scrubbed. Clothing was either

taken to a wash-house and washed, or sent to the Disinfecting Station, at the option of the people. With 253 houses to clean, this process took some time, but apart from the thorough cleansing as above, all the householders in the experimental block turned out their furniture into the streets, scrubbed it and swept the houses within a week of the taking over of the small district. With two exceptions there was no case of plague, the first invasion of which was after the date of thorough cleansing.

15. So many cases occurred in the second week in May that difficulty was found in obtaining accommodation for the occupants of the houses. I therefore took a house in Third Street as a local hospital, where the patients might be attended by their friends. Two hospital attendants were engaged, but unfortunately trained attendants could not be procured. The people showed no disinclination to go to this hospital.

16. On the 14th May I directed that the inhabitants of Sheung Fung Lane should be moved as so many cases of plague had occurred, and I wished to have the houses thoroughly explored for rat runs to see if any connection could be traced between the houses in which plague had occurred. The Report (Appendix B.) shows that while rat runs were connecting respectively Numbers 1, 3 and 5, 7 and 9, 15 and 13, 6 and 8, 2 and 4, the houses in connection with 8 and 4, the only infected houses in the series, namely 6 and 2, were not apparently infected.

18. Having stated the objects of my experiment, the question remains whether, assuming that local hospitals and a minimum of disturbance will ensure a more timely discovery of cases of plague, we may hope for a material diminution in the case mortality. As affording a rough comparison I have obtained from Dr. Thomson a return of the cases of plague in Kennedy Town Hospital during this year's epidemic. It will be found in Appendix F. Dr. Thomson divides the cases into two divisions, the reasons for which are two-fold. About the middle of May an improved method of examination of blood for bacilli, first, I believe, discovered by Dr. Ross, was adopted by Dr. Bell of the Government Civil Hospital, and by this method a large number of mild cases of plague were diagnosed, especially among Europeans, which under former methods would have escaped observation, and again at this time the treatment of patients by large doses of carbolic acid was adopted in Kennedy Town Hospital with very favourable results. Therefore for comparison of case mortality with the people treated locally it was considered better to take the period embracing the first half of the epidemic. In that time there were 123 cases of Chinese patients of whom 106 died, showing a mortality of 86.17 per cent. In the experimental block 35 cases were reported, of which 10 were already dead. The number treated was therefore 25, with 21 deaths, showing a mortality of 84 per cent. I am aware that these numbers are too small to afford a sound basis for scientific comparison, yet it is satisfactory

to find that so far as it went the result of the experiment was apparently in its favour to the extent of 1·83 per cent. In noting this result the disabilities of the system of local treatment as tried by me must be considered. I have stated that the prescriptions given by the Chinese doctors are good, so far as they go. But with the administration of medicine the care of the average Chinese practitioner ceases, and the question of nourishment and all the assuagements that come under the head of nursing are neglected. The sufferers in my district would take no medicine save the usual prescription given by the Chinese doctor, which they obtained from the local druggist. The doctor, at my request, prescribed port wine, and beef tea, both of which I had supplied to the druggist, who was one of the most active members of the *Kai-fong*, and anxious to do anything in his power that might increase the chances of recovery. But the patients refused to take them, and I found them having nothing but rice, or congee, which is water thickened with rice flour. In Kennedy Town I understand that patients take the nourishment ordered for them without difficulty, and I am of opinion that with properly equipped local hospitals under proper supervision and with trained nurses the mortality would be sensibly diminished.

19. We found it difficult to trace the means of infection. The immunity of people living, sometimes for several days, in the same room went far to disprove the theory of contact. With the exception of Chu Kom and Wong Sam from No. 4 Sheung Fung Lane none of the people of that house who were attacked worked together, or partook of the same food. Fourteen days after Sheung Fung Lane had been cleansed out I directed that as many fleas, bugs, &c., as could be found should be sent to the Government Bacteriologist for examination. A number of bugs and a spider were found, and on the 10th June, Dr. Hunter reported that in both bugs and spider were found plague bacilli. At the same time he reported as the result of examination of a number of bugs, flies, and fleas from No. 4, Sheung Fung Lane, where several cases of plague had arisen, that no bacilli were found. Again, after the death of the two boys who lived on the first floor of 109 Second Street, bugs were procured from the first floor and from the ground floor. Dr. Hunter reported that in the two bugs from the first floor no bacilli were found, but a number of bugs from the ground floor were found infected with several plague bacilli. During a visit to the Plague Hospital at Kennedy Town, I observed a large number of flies in one ward, numbers of which had settled on the patients. I directed that a number should be sent for examination. On the 9th July, Dr. Hunter reported that the majority of the flies were plague-infected. He reported at the same time that several cockroaches caught in a stall in the Central Market contained *B. pestis*. On the 1st June it was reported that fowls from the Western Market were found to have died of plague, and as the poorer classes of

Chinese eat the entrails of fowl with their rice in a semi-cooked state, a notice was issued that such food if not thoroughly cooked was dangerous. On examining specimens of various foods exposed for sale, Dr. Hunter has since found the *B. pestis* in inferior rice. I have suggested to Dr. Thomson to find by experiment if mosquitoes which fed on plague patients contain bacilli, and several have been examined by Dr. Hunter with negative results. The examination is, however, being continued.

20. We have from Professor Simpson's report evidence that pigs, calves, sheep, monkeys, geese, ducks, turkeys, hens, pigeons and rats are susceptible to plague, which may be contracted by food or by inoculation direct, or by means of suctorial insects. To this list the examination mentioned above adds bugs, spiders, flies and cockroaches. I may add that quails kept in the market for sale were also found to be infected. In paragraph 22, page 100, Professor Simpson points out that domestic animals suffer from chronic plague and surmises that this is probably one of the bridges by which the intervals of the attacks in man are connected. I have for a considerable time been of opinion that man is himself subject to chronic plague, which may either pass away after a considerable time, or continue dormant over the winter months, regaining activity with the annual movement of Spring when the curve of the epidemic is almost constant. This opinion was strengthened by the fact that in August, 1899, the body of a Chinese lift-man at Queen's Buildings who was accidentally killed when attempting to enter the lift while in motion, was found to contain plague bacilli. A similar result followed the examination of a man who on the 4th March, 1901, was killed at Tai Koo sugar works by a bag of sugar falling on his head from a height of 20 feet; while, on the 2nd April, 1903, in the body of the chief steward of a ship lying in dock, found floating with a large wound on the head, were also found plague bacilli. Early in June several men from H.M.S. *Ocean* were sent to the Naval Hospital, suffering from pneumonia; on examination of their blood seven were found to be suffering from mild cases of plague. In like manner two Officers of the Sherwood Foresters who developed feverish symptoms were, on having their blood examined, found to be similarly affected. In the "Boletim Official" of Macao containing the report on the plague epidemic, 1895, Dr. Gomes da Silva, the Medical Officer who published the report in 1895, stated that during the height of the epidemic he had discovered plague bacilli in his own excreta.

21. In June, I directed Inspector Gidley to obtain as many specimens of blood as possible, on slides procured from the Government Bacteriologist. He obtained 110 specimens from men, women and children, taken at random. These slides were sent to Dr. Hunter for examination, who reported that in five

slides he found plague bacilli, and in seven slides "bacilli were present in considerable numbers, some of which showed bipolar staining. They were not sufficiently distinctive, however, to be regarded as *B. pestis*." These slides were obtained between the 23rd June and 10th July. Since they were obtained there were but three cases of plague in the district, from none of which was a specimen of blood taken.

22. I am not unmindful of the fact that these reports were the result of microscopic examination only. But the examination was the same as that on which a great many of the cases treated in Kennedy Town Hospital were sent to that institution, where their cases ran the usual course of plague invasion.

23. Now, putting aside the five doubtful slides, it will be seen that of these people examined at random 4.54 per cent. were found to be infected with plague though to all appearance perfectly healthy. If we exclude all the well-to-do, and take the working coolie population alone, they probably number 180,000 and, assuming the same average amount of infection, there are among that class alone, 8,172 persons at present infected in Hong Kong. If even a quarter of that average be accepted for the 105,000 inhabitants of superior class the number of infected will be increased to 9,364. In Appendix G. will be found the number of rats examined in each month of the present year, with the proportion of infected rats. I am afraid that the incidents mentioned in paragraph 5 weaken deduction as regards Hong Kong. But from whatever source the rats were procured the proportion of infection in June was 9 per cent., or 4.46 per cent. more than the percentage of the slides examined, or, if the doubtful cases mentioned by Dr. Hunter be included, 1 per cent. less, while in January the proportion falls to .8 per cent. This being so, with the complete circle of vermin, insects, food, rats, domestic animals and man all infected in possibly similar, possibly different proportion, it appears to me unsound to concentrate attention upon the rat as the principal means of bridging over the dormant season.

24. I do not know whether the conduct of a culture of the bacillus pestis has ever been observed for an annual cycle. I am informed that the usual culture in a culture tube dies in a short period, either by having exhausted the nutriment from the culture medium or by having poisoned it by its own toxin. If the blood of those in whom plague bacilli now exist without producing the usual effects of plague could be periodically examined all through the coming year, much light might be thrown upon the dormant period, and the highly important question of the infectivity of these people might be solved. But failing this I have suggested the possibility of preparing a culture in so large a quantity of culture medium as will permit of the spread of the bacillus to the utmost extent during the period shown to be that of annual activity and still

leave the medium in sufficient quantity to support any renewal of propagation. In this way I suppose that the annual movement of the bacillus might be observed.

25. The problem before us is, then, not simply the prevention of introduction of plague from without, a precaution taken singly that, considering the wide infection of the city, must be futile, but the elimination of the media of infection in our midst, and the building up of the power of resistance to plague invasion by improvement in the general health of the population that may result from improved sanitary conditions. The first can only be accomplished by constant, unremitting attention to cleanliness of person, furniture, and premises, and to be effectual it is of cardinal importance that the co-operation of the people be secured. With proper facilities afforded, I am of opinion that, while in Hong Kong, as elsewhere, the residuum might be difficult to deal with at first, the difficulties are not insurmountable, and practical co-operation might be secured by enlisting the sympathies and services of the large class of respectable Chinese in a determined effort to combat the recurring epidemic, the evils of which they fully realize.

Beyond the cleansing of premises there is no way by which a large number of Chinese tenement houses can be made sanitary. Each floor of these houses is a tunnel thirteen feet wide, nine feet high and of varying length, from thirty to sixty feet, with a window in front and rear. Into a large number of these floors direct sunlight never enters, and in the centre even diffused light is practically absent. When to these conditions is added a surface population so dense as it is in our congested districts—being in one district over 990 persons to the acre—it will be recognized that a population so circumstanced must necessarily be deficient in vitality.

The only remedy for this is the reconstruction of Chinese tenement houses on improved plans, and the rigid observance of the provisions of the Public Health and Buildings Ordinance in relation to overcrowding. The removal and reconstruction of Chinese tenement houses will be very costly and will necessarily be a slow process, but it must be faced if we desire to prevent the devitalising of the working population to such a point that they fall ready victims to the invasion of every passing disease.

26. I attach, in Appendix I, an interesting report just received from the Government Bacteriologist relating to the question of exterminating plague bacilli in vermin.

This experiment shows that the mere washing of furniture with a solution of Jeyes's Fluid will not destroy the vermin that infest it.

HENRY A. BLAKE,

Governor.

Government House, Hong Kong, 3rd August, 1903.

APPENDIX A.

REPORT OF THE EXPERIMENTAL BLOCK IN SECOND
AND THIRD STREETS.

From 20th April, 1903, to the 20th July, 1903.

Central Police Station,

Hong Kong, 18th July, 1903.

YOUR EXCELLENCY,

I have the honour to report the following for your information:—

On or about the 20th of April, at the direction of Your Excellency, I took over charge of the south side of Second Street, and the north side of Third Street from Eastern to Western Street, and all streets and lanes within this boundary.

On the 22nd of April, we started a systematic cleansing out of all the houses within this radius. We usually washed out from 9 to 12 floors daily at each tank, of which there were four in the experimental block. The tanks measured nine feet in length, two feet in width and three feet deep and held about 400 gallons of water. Into this quantity we put about two pints of carbolic acid and when this was boiling we commenced operations. We induced the people to first dip their mats and cloth material into the tanks for about two minutes, after which we dipped the bed boards, stools and furniture, &c., and more especially the kind of furniture most likely to harbour vermin.

After the furniture, &c., had been washed, the floors were first washed out with cold water and then sluiced down with hot water from the tanks, and when the things were dry the occupants removed them back to their houses again.

If a case of plague or other infectious disease came from any of the floors, the same process was gone through with the addition that the clothing, &c., was disinfected, either by dipping them into the hot water tanks or at the Disinfecting Station, as the people preferred.

During the early part of our experiment, when a case broke out on a floor, we allowed the patient to remain in the house and removed the other occupants to an empty floor.

When the patient died or recovered, the occupants moved back again after the house had been cleaned out.

Latterly, instead of this, we rented a house in the block and turned it into a hospital. When a case came to our notice, the patient was removed to the hospital. The other occupants then washed out their furniture and had their clothing disinfected. They did not shift but remained where they were.

On the 25th of April, owing to the plague being upon us, we set all the tanks going and washed out the whole block.

On the 14th of May, owing to the large number of plague cases in Sheung Fung Lane, all the people living there, numbering 339 persons, were removed to the Observation block in Kui Yan Lane. After removal no further cases occurred amongst them.

On the 25th of May, we took over both sides of Second and Third Streets, making a total of 253 houses, consisting of 614 floors and occupied by 7,701 persons inclusive. 78 of these floors were vacant at the time this census was taken.

On the 27th of May, we started to wash out the new block in conjunction with the old block.

On the 29th of May, we caught a number of bugs in Sheung Fung Lane and sent them to Dr. Hunter for examination.

A number of them contained plague bacillus.

Acting on Your Excellency's instructions, we also took blood from as many persons as possible, and sent the slides to Dr. Hunter for examination. We were successful in getting about 150 slides in all at different times from men, women, and children; a number of these also contained plague bacillus. A number of bugs were also sent from Numbers 71 and 109 Second Street, where cases of plague had occurred. Bacillus was also found in them.

The number of people of both sexes who used the bath-houses from the 15th of May up to the 12th of July, were altogether 34,350, as follows:—

Woi On Lane	...	...	...	Males,	6,385
92, Second Street	...	...	...	,,	14,485
On Wai Lane	...	...	...	Females,	6,385

The bath-house in Sheung Fung Lane was not used owing to the prevalence of plague there, otherwise the number of women would have been even greater.

The total number of cases to date is 43, which is made up as follows:—

30 cases certified as plague died, or were reported dead.

4 cases certified as plague, recovered.

1 case certified as plague still under doctor's treatment.

5 cases not plague, recovered.

2 cases not plague, died.

1 case not plague removed to Tung Wah Hospital.

Total, 43

A number of these cases were imported into the block under the following circumstances:—

Chan Pui, 16, M., cook, 99, Third Street, who was reported sick on the 17th June and died the same day, came to No. 99, Third Street to visit one of his clansmen; while there, he took sick and died. He came from the "Kung Tai" Club, No. 120, Hollywood Road. He had been employed there as cook.

So Ki, 57, M., rattan worker, No. 6, Tak Sing Lane, 2nd floor, was reported sick on the 13th of June and died on the 14th of June. He complained of feeling ill on the 5th of June while residing at No. 10, Torcin Street, and left the same day and went to No. 6, Tak Sing Lane.

Chan Fung, 17, M., coolie, No. 67, Third Street, who was reported sick on the 26th of May, came from the Aberdeen Brick works to the above address sick, on the 23rd of May.

There were five cases of plague reported from one house under the following circumstances:—

On the 11th May, a girl named Li Nga was reported dead, from the 1st floor of No. 4, Sheung Fung Lane. The occupants were removed to No. 76, Second Street, after disinfecting their clothing and furniture.

The following day, 12th May, a woman named Leung Sin was reported sick, from the ground floor.

The occupants of this floor were also removed to No. 76, Second Street, except the husband and uncle of the patient.

On the 19th May, the uncle, Chnn Kum, who remained to look after the woman in No. 4, Sheung Fung Lane, reported sick.

He was removed to the hospital in Third Street, where he eventually recovered.

On the 14th May, a man named Chu Kum reported sick, from No. 76, Second Street. This man originally came from No. 4, Sheung Fung Lane, ground floor. He was attended to by a woman named Wong Sam, who also came from No. 4, Sheung Fung Lane. The other occupants were then removed to No. 74, Second Street. He died on the 15th of May.

The following morning, the 16th May, the woman Wong Sam also reported sick. She was removed to the hospital in Third Street where she died on the 20th of May.

In a second case there were two cases reported from the same house on different dates as follows:—

On the 11th of May, a man named Chau Po was reported sick, from the first floor of No. 80, Second Street. He died on the 14th of May. During his illness he was nursed by his wife and daughter. On the 19th of May, the daughter reported that the mother had also died.

Two cases were also reported from No. 109, Second Street, first floor, on the 7th July, namely:—

Lai Chu, age 5, schoolboy, and Lai Tak, age 11 years, school-boy. They were both removed to the temporary hospital.

The younger boy Lai Chu during the afternoon was removed to the Kennedy Town Hospital at the request of the parents.

He died the following morning about 6.30 a.m.

The elder boy died about 2.30 p.m. the same day as he was admitted. The above two were brothers.

Except in the above there have been no cases reported where there has been any connection between them.

I enquired from most of the people as to what meat and vegetables they had with their meals, but could find nothing out of the common except that they all bought whatever they had at the Western Market.

The undermentioned are the names of the *Kai-fong* and their occupations:—

Chan Ki, Druggist.

Chak Cheung, Fishmonger.

Mak Siu, Caulker.

Mak Hi, Salt Fish Dealer.

Mak Chak, Lime Washer.

Lau Chiu, Fruit Hawker.

Liu Yi, Retired Contractor.

Wong Wai, Salt Fishmonger.

Tam Chun, Timber Merchant,

Mang Ling, Fruit Hawker.
Cheng Tai, Grocer.
Kwok Nam, Rent Collector.
Fung Kun, Fishmonger.
Un Shai Ki, Stonecutter.
Tsan Sang, Stonecutter.
Cheong Chi, Carpenter.
Chan Chun, Grocer.
Wan Fun, Grocer.
Mang Yat, Fruit Hawker.

The quantity of disinfectants, &c., used during the experiment consists of:—

55 gallons of carbolic acid.
 $\frac{1}{2}$ barrel of Jeyes's Fluid.
40 bars of household soap.

I have, &c.,

T. H. GIDLEY,

Detective Inspector.

To His Excellency

Sir Henry A. Blake, G.C.M.G.

APPENDIX B.

EXPERIMENTAL BLOCK.

REPORT showing NUMBER of RAT-HOLES in PREMISES of
SHEUNG FUNG LANE.

House No.	Floor.	Remarks.
No. 1	Ground	One hole leading to kitchen.
No. 3	Top	One " " " No. 1 top floor.
No. 5	Ground	One " " " No. 3 ground floor.
No. 5	"	Three holes " " kitchen.
No. 7	"	One hole " " No. 9 ground floor.
No. 9	"	One " in kitchen penetrating two feet three inches into the earth.
No. 15	Top	One hole leading to No. 13 top floor.
No. 18	Ground	One " " " kitchen.
No. 6	"	One " " from kitchen to No. 8 ground floor kitchen.
No. 2	Top	One hole leading from kitchen to No. 4 top floor kitchen.

J. H. SYDNEY,

Temporary Inspector of Observation Block.

Hong Kong, 26th May, 1903.

APPENDIX C.

HISTORY OF EACH CASE.

Chan Koo, 30, M., rattan worker, No. 16, Sheung Fung Lane, 1st floor, reported dead on the 24th April. 12 persons occupied this floor. This house had not previously been washed out by us. No further cases were reported from this house. After washing out the house the occupants were allowed to remain.

Yuen Fong, 23, F., married woman, No. 3, On Wai Lane, 1st floor, reported sick on the 26th of April. She had been sick since the 24th of April. This case was declared plague. She was attended to by an outside Chinese doctor, under whose care she eventually recovered. The other occupants were removed to No. 88, Second Street, after washing their effects in the tanks. No further cases were reported from this house. This floor was occupied by 15 persons. She was nursed by her mother and another Chinese woman. This house had not previously been washed out by us.

Wong Tak, 52, M., coolie, No. 44, Second Street, 1st floor, reported sick the 30th April. Had been sick since the 24th of April, and died the 1st of May. The other occupants were removed to No. 76, Second Street. After his death, the other occupants removed back after washing out the floor and going through the usual process. He was attended to by the Chinese doctor from the Tung Wah Hospital and nursed by a clansman. This man was also a victim to consumption. 14 persons occupied this floor. This house had not been previously washed out by us.

Lai Chun, 24, M., hawker, No. 21, Sheung Fung Lane, ground floor, reported sick on the 1st of May. This man had a bubo in the groin and a scar on the foot. He stated that he fell a few days previous, causing the scar on the foot. This case was declared not plague.

Ching King, age 5, F., child, No. 6, Tak Sing Lane, 1st floor, reported sick on the 3rd of May. She had been sick since the 1st of May, and died on the 4th of May. It was declared plague. The people were removed to No. 76, Second Street, and went back the following day. No further cases were reported from this floor. A case was reported from the floor above on the 13th of June, a man named Soo Ki. This case had no connection with the above, as Soo Ki came to this house on the 5th of June from No. 10, Torcin Street. 21 persons occupied this floor. No further cases were reported from this house.

Kwok Yung, age 58, M., coolie, No. 8, Sheung Fung Lane, 1st floor, reported dead on the 6th May. Had been sick since the 1st May. Four occupants resided on this floor. Disinfected clothing, &c., and allowed the occupants to remove to No. 48, Centre Street, at their own request. No further cases reported from this house. This was declared plague.

Cha Chun, 28, M., coolie, No. 8, Sheung Fung Lane, ground floor. He was reported sick on the 7th of May, and died the following day. The occupants removed into the street and after washing out the house removed back. Nine persons occupied this floor. Plague.

Li Nga, 13, F., girl, No. 4, Sheung Fung Lane, 1st floor, reported dead the 11th May; said to have been sick since the 10th May. The occupants, numbering 12, were removed to No. 76, Second Street. Plague. This house had been cleaned out by us on the 10th instant.

Chan Po, 64, M., head coolie, No. 80, Second Street, 1st floor, reported sick on the 11th May; had been sick since the 4th May, and died on the 14th of May. The occupants, numbering 18 persons, were removed to No. 72, Second Street, 3rd floor. No further cases were reported from them after removal. He was nursed by his wife and daughter and treated by the Chinese doctor from the Tung Wah Hospital. Plague.

Foo Lai Chun, wife to the above, was reported dead by the daughter, on the 19th of May. She stated that when her father died, the mother took sick, but she thought she was grieving for her husband, so did not think it serious, therefore failed to report it. After burying the mother the daughter returned to the country. Plague.

Leung Sin, 33, married woman, No. 4, Sheung Fung Lane, ground floor, reported sick on the 12th of May, and had been sick since the 11th May. She was declared to be suffering from plague. She was attended to by the Chinese doctor from the Tung Wah Hospital and nursed by her husband and uncle. The other occupants were removed to No. 76, Second Street. This woman had been engaged by us to look after the bath-houses and tanks. She had a child suckling at the breast; it was at once taken away and put out to wet nurse. It did not contract plague. This house had been washed out by us on the 10th of May, the woman assisting in washing out. Plague.

Lai Kan, 30, F., married woman, No. 17, Sheung Fung Lane, ground floor, reported sick on the 12th of May; had been sick since the 10th of May, and died the 14th of May, leaving a daughter, age about 12 years, destitute, the husband being in the country. The girl was taken to the Po Leung Kuk, where she was eventually claimed by the father. The other occupants, numbering 15 persons, had cleared out and the *Kai-fong* were unable to trace them. Plague.

Chu Kum, 52, M., hawker, No. 76, Second Street, ground floor, reported sick on the 14th of May; took sick the 13th of May, and died on the 15th of May. This man came from the ground floor of No. 4, Sheung Fung Lane on the 12th May and assisted in the washing out of this floor. He was nursed by a woman named Wong Sam, who also came from No. 4, Sheung Fung Lane. She reported sick on the 16th. See "Wong Sam." Plague.

Un Kum Sze, 23, F., married woman, No. 3, Sheung Fung Lane, 1st floor, reported sick on the 4th May, and died on the 8th of May. She was not moved to the hospital as she was too ill. This woman also had a child suckling from the breast. It was taken away and put to nurse on the bottle. The child did not develop plague. The nine occupants were removed to the Observation Block in Kui Yan Lane. None of them developed plague. Plague.

Wong Sam, 28, F., married woman, No. 74, Second Street, ground floor, reported sick on the 16th of May; took sick on the 15th of May, and died on the 20th of May at the temporary hospital where she was removed to on reporting sick. She was the woman who originally came from No. 4, Sheung Fung Lane to 76, Second Street on the 12th May, and after moved to No. 74, Second Street, as a man named Chu Kum reported sick. Plague.

Cheung Sam, 28, M., gardener, No. 22, Sheung Fung Lane, ground floor, reported sick on the 19th of May; took sick on the 19th. This was not a case of plague, and he eventually recovered.

Chun Kum, 55, M., hawker, No. 4, Sheung Fung Lane, ground floor, reported sick on the 19th of May; took sick same day. He was removed to the temporary hospital and eventually recovered. This man was the uncle of Leung Sin and assisted in nursing her during the absence of the husband. Plague.

Tong Lum, 68, M., carpenter, No. 30, Second Street, 2nd floor, reported sick on the 25th May; had been sick since the 24th of May. Not plague. He was removed to the Tung Wah Hospital.

Choi Koi, 29, M., hawker, No. 4, On Wai Lane, 1st floor, reported sick on the 29th of May; had been sick since the 23rd of May, and died on the 1st of June. This man had been treated by an outside Chinese doctor before reporting the case to us. Eight occupants resided on this floor. This lane had been washed out once by us previous to the man reporting ill. Disinfected by the usual process and occupants allowed to remain. Plague.

Chung Yuen, 22, married woman, No. 94, Third Street, 1st floor, reported sick on the 31st of May. She had been sick

since the 26th of May, and was removed to the temporary hospital, where she died on the 1st of June. 15 persons occupied this floor. No other cases were reported from them. Disinfected by the usual process and occupants allowed to remain. Plague.

Chung Chung, 13, M., schoolboy, No. 103, Second Street, 1st floor, reported sick on the 1st June. He had been sick since the 29th of May. Plague. This boy attended the school at No. 109, Second Street. 27 occupants resided on this floor. No further cases reported from them. Disinfected by usual process and occupants allowed to remain.

Keung Kwan, 14, F., girl, No. 23, Third Street, ground floor, reported dead on the 3rd of June. Had been sick since the 30th of May. Plague. 18 occupants resided on this floor. No further cases were reported from them. Disinfected by the usual process and people allowed to remain.

Ip Fai, 36, F., seamstress, No. 82, Third Street, ground floor, reported dead on the 3rd of June; said to have been sick since the 2nd of June. Plague. The other woman occupying this floor cleared out, but was traced by the *Kai-fong*. She removed to the 1st floor, leaving the ground floor empty. No further cases reported from this floor.

Yuen Sam, 63, M., coolie, No. 40, Third Street, 1st floor, reported sick the 4th of June, and died the same day. Sick since the 2nd of June. 13 people occupied this floor. Plague. No further cases reported from them. House washed out in usual manner.

Li Kwai, 78, M., coolie, No. 71, Second Street, ground floor, reported sick the 5th of June, and died at 12 noon the same day. He had been sick since the 3rd of June. Plague. 10 occupants resided on this floor. This floor is used as a lecturing room.

Cheong Iu, 35, M., 56, Second Street, 3rd floor, reported dead on the 5th of June; said to have been sick one day. Plague. There was no furniture on this floor, which was used as a sort of coolie house. 18 persons occupied this floor. It overlooked the harbour and had plenty of ventilation; had a brick floor and was fairly clean. A few nights before this man took ill it is said that he stayed all night in a brothel in Shek Tong Tsui. No further cases were reported from this floor. Disinfected the floor by the usual process.

Chan Ngan, 22, married woman, No. 54, Second Street, second floor, reported sick on the 5th of June, and sick since the 2nd June. Not plague. Recovered.

Mok Chan, 20, F., married woman, No. 5, Second Street, ground floor, reported sick on the 6th of June. Had been sick since the 1st of June, and died on the 8th of June. Plague.

She had been pregnant about four months and gave premature birth to a child on the 5th June. 23 people occupied this floor. No further cases reported from them. Disinfected this floor by the usual process.

Leung Lai, 33, M., boatman, No. 55, Third Street, 1st floor, reported sick on the 6th of June. Sick since the 5th June. Not plague. Recovered.

Wong King, 25, M., coolie, No. 46, Centre Street, 2nd floor, reported sick on the 8th June. Sick since the 7th of June. Not plague. Recovered.

Man Ping, 55, M., coolie, No. 73, Second Street, ground floor, reported sick the 11th of June. Sick since the 9th June, and died on the 17th of June. Not plague.

Soo Ki, 57, M., rattan worker, No. 6, Tak Sing Lane, 2nd floor, reported sick on 13th June. Sick since the 7th June, and died on the 14th of June. Plague. This man had been working at No. 10, Torcin Street up to the 5th of June, when he removed to No. 6, Tak Sing Lane. Occupants resided on this floor. No further cases were reported from them.

Chi Ying Cheong, 2, M., child, No. 60, Third Street, 1st floor, reported sick the 13th June; took sick the same day as reported, died the 15th of June. Plague. Was not moved to hospital but nursed by the mother. 14 people occupied this floor. No further cases reported from them. Disinfected this floor by usual process.

Kung Chi Wo, 20, F., broom maker, No. 30, Third Street, 1st floor, took sick and reported on the 14th June; died on the 15th June. Plague. 13 persons resided on this floor. Disinfected by usual process. No further cases reported from this floor.

Chan Pui, 16, M., cook, No. 99, Third Street, ground floor, reported dead on the 17th June. On the 16th of June he came from No. 120, Hollywood Road, where he had been employed, to visit one of the inmates of the above address; while there he took sick and died. Plague. 10 persons resided on this floor. Disinfected by the usual process. No further cases reported from this floor.

Yuen Fai, 26, M., coolie, No. 52, Third Street, 1st floor, reported sick on the 19th June. Took sick on the 18th June, and eventually recovered. Plague. 21 persons resided on this floor. No further cases reported from them. Disinfected house by the usual process.

Lo Nam, 1, M., child, No. 1, Kwok Yin Fong, 1st floor, reported dead 24th June. Sick since the 21st June. Not plague.

Lai Hing, 50, M., coolie, No. 50, Third Street, 1st floor, reported sick on the 27th June. Sick since the 26th of June,

and died on the 29th of June. Plague. 14 occupants resided on this floor. No further cases reported from them. House disinfected in the usual manner.

Lai Chu, age 11, M., schoolboy, No. 109, Second Street, 1st floor, reported sick on the 7th of July. Sick since the 6th of July, and died on the 7th July. Eight occupants.

Lai Tak, 5, M., schoolboy, No. 109, Second Street, 1st floor, brother to the above, reported sick on the 7th July. Sick since the 6th July, and died on the 8th July. These two were removed to the temporary hospital when the cases were reported. During the day the younger boy was removed to Kennedy Town Hospital at the request of the parents, where he died the following morning. The elder boy died the same day as it was reported at the temporary hospital.

Chan Fung, 17, M., coolie, No. 67, Third Street, 2nd floor, reported dead on the 26th of May. He came from the Aberdeen Brick Works sick on the 23rd of May to the above address. The fellow lodgers failed to make any report until he was dead. Plague. 17 persons resided on this floor. No further cases reported from them. House disinfected in the usual manner.

A Lum, 44, M., coolie, No. 73, Second Street, 1st floor, reported dead on the 26th of May; said to have been first taken sick on the 25th of May. This house had not been washed out by us. 15 persons occupied this floor. No further cases reported from them. Plague.

Foo Chin, 38, F., married woman, 107, Second Street, 1st floor, reported sick on the 15th of July. Sick since the 9th July. She had been pregnant nearly nine months. The husband is a ship's fireman and is mostly absent. He returned on the 14th of July. On the 11th she went to see a doctor in the Central District. The bed boards of this house had been washed out by us twice. The woman was too ill to be removed. The other occupants, numbering nine persons, have been removed to No. 76, Second Street. It has been declared plague. She appears to be slightly better and is still under doctor's care.

I have, &c.,

T. H. GIDLEY,

Detective Inspector.

To His Excellency

Sir Henry A. Blake, G.C.M.G.

APPENDIX D.

THIRD STREET.

No.	Floor.	Men	Women.	Children.	Total.	No.	Floor.	Men.	Women.	Children.	Total.
1	Gr.	9	3	1	13	43	Gr.	10	0	0	10
	1st	11	1	0	12		1st	12	0	0	12
3	Gr.	9	1	1	11	45	Gr.	9	0	0	9
	1st	4	4	3	11		1st	4	5	1	10
5	Gr.	10	1	1	12	47	Gr.	8	4	5	17
	1st	3	1	1	5		1st	13	0	0	13
7	Gr.	8	0	0	8	49	Gr.	28	0	0	28
	1st	9	3	3	15		1st	0	0	0	0
9	Gr.	8	1	0	9	53	Gr.	14	1	0	15
	1st	9	3	3	15		1st	9	3	3	15
11	Gr.	4	2	3	9	55	Gr.	10	10	3	23
	1st	3	3	3	9		1st	10	2	2	14
13	Gr.	0	0	0	0	57	Gr.	12	0	0	12
	1st	5	2	2	9		1st	0	0	0	0
15	Gr.	6	4	7	17	59	Gr.	5	3	1	9
	1st	6	6	0	12		1st	15	4	3	22
17	Gr.	7	7	4	18	61	Gr.	8	0	0	8
	1st	6	6	0	12		1st	2	3	4	9
19	Gr.	4	5	3	12	63	Gr.	9	3	2	14
	1st	12	0	0	12		1st	9	3	2	14
21	Gr.	3	5	4	12		2nd	5	5	6	16
	1st	13	0	0	13	65	Gr.	14	1	1	16
	2nd	15	0	0	15		1st	0	0	0	0
23	Gr.	6	5	7	18		2nd	12	2	2	16
	1st	12	2	3	17	67	Gr.	4	4	1	9
	2nd	2	3	1	6		1st	16	0	0	16
25	Gr.	11	2	1	14		2nd	13	2	2	17
	1st	0	0	0	0	69	Gr.	0	0	0	0
	2nd	0	0	0	0		1st	10	3	2	15
27	Gr.	0	0	0	0		2nd	0	0	0	0
	1st	12	3	0	15	71	Gr.	6	3	2	11
	2nd	0	0	0	0		1st	18	8	0	26
29	Gr.	4	4	3	11		2nd	0	0	0	0
	1st	3	4	2	9	73	Gr.	13	4	3	20
	2nd	1	2	0	3		1st	10	3	2	15
31	Gr.	9	5	2	16		2nd	14	4	1	19
	1st	6	6	1	13	75	Gr.	7	3	1	11
	2nd	11	0	0	11		1st	7	3	1	11
33	Gr.	10	0	0	10		2nd	13	5	4	22
	1st	18	1	2	21	77	Gr.	9	4	5	18
	2nd	13	0	0	13		1st	9	7	5	21
35	Gr.	10	5	0	15		2nd	6	5	7	18
	1st	6	3	2	11	79	Gr.	15	3	6	24
37	Gr.	2	3	0	5		1st	8	8	5	21
	1st	4	2	2	8		2nd	5	6	5	16
39	Gr.	11	2	3	16	81	Gr.	10	3	4	17
	1st	0	0	0	0		1st	6	6	4	16
							2nd	10	4	7	21

Third Street—continued.

No.	Floor.	Men.	Women.	Children.	Total.	No.	Floor.	Men.	Women.	Children.	Total.
83	Gr.	8	7	5	20	95	1st	1	3	1	5
	1st	0	0	0	0		2nd	4	4	0	8
	2nd	10	6	2	18	97	Gr.	9	0	0	9
85	Gr.	13	3	3	19		1st	5	4	6	15
	1st	1	1	3	5		2nd	8	0	0	8
	2nd	0	0	0	0	99	Gr.	10	0	0	10
87	Gr.	8	5	1	14		1st	13	3	4	20
	1st	7	6	4	17		2nd	12	1	4	17
	2nd	10	1	4	15	101	Gr.	10	2	1	13
89	Gr.	11	5	3	19	103	Gr.	6	6	5	17
	1st	0	0	0	0		1st	16	0	5	21
	2nd	1	1	2	4	105	Gr.	6	1	1	8
91	Gr.	12	0	0	12		1st	12	5	1	18
	1st	0	0	0	0	107	Gr.	3	2	1	6
	2nd	0	0	0	0		1st	5	5	4	14
93	Gr.	12	0	0	12	109	Gr.	10	0	0	10
	1st	0	0	0	0		1st	9	3	3	15
	2nd	0	0	0	0	111	Gr.	0	0	0	0
95	Gr.	0	0	0	0		1st	11	3	2	16

Third Street—continued.

No.	Floor.	Men.	Women.	Children.	Total.	No.	Floor.	Men.	Women.	Children.	Total.
2	Gr.	35	0	0	35	24	Gr.	7	9	0	16
	1st	0	0	0	0		1st	10	4	3	17
4	Gr.	0	0	0	0	26	Gr.	8	0	0	8
	1st	0	0	0	0		1st	7	2	1	10
6	Gr.	20	0	0	20	28	Gr.	7	0	0	7
	1st	0	0	0	0		1st	7	3	2	12
8	Gr.	3	4	5	12	30	Gr.	6	3	2	11
	1st	10	2	2	14		1st	6	4	3	13
10	Gr.	6	8	5	19	32	Gr.	4	2	3	9
	1st	4	4	7	15		1st	7	1	1	9
12	Gr.	3	1	6	10	34	Gr.	0	0	0	0
	1st	0	0	0	0		1st	0	0	0	0
14	Gr.	4	5	2	11	36	Gr.	7	0	0	7
	1st	0	0	0	0		1st	12	0	0	12
16	Gr.	0	0	0	0	38	Gr.	6	0	0	6
	1st	15	3	1	19		1st	10	2	4	16
18	Gr.	4	4	6	14	40	Gr.	10	4	4	18
	1st	6	5	1	12		1st	8	3	2	13
20	Gr.	6	2	4	12	42	Gr.	16	0	0	16
	1st	3	3	3	9		1st	0	0	0	0
22	Gr.	13	2	4	19	44	Gr.	9	0	0	9
	1st	10	1	2	13		1st	6	4	4	14

Third Street—continued.

No.	Floor.	Men.	Women.	Children.	Total.	No.	Floor.	Men.	Women.	Children.	Total.
46	Gr.	14	0	0	14	70	1st	6	4	1	11
	1st	11	5	6	22	72	Gr.	10	5	0	15
48	Gr.	8	5	2	15		1st	9	4	1	14
	1st	15	4	4	23	74	Gr.	9	8	3	20
50	Gr.	10	10	2	22		1st	5	6	4	15
	1st	8	3	3	14	76	Gr.	10	4	8	22
52	Gr.	6	2	4	12		1st	21	1	7	29
	1st	15	4	2	21	78	Gr.	7	0	0	7
54	Gr.	3	5	4	12		1st	8	5	2	15
	1st	12	4	4	20	80	Gr.	5	3	4	12
56	Gr.	13	4	1	18		1st	10	5	3	18
	1st	13	0	3	16	82	Gr.	0	0	0	0
58	Gr.	9	4	5	18		1st	7	3	3	13
	1st	19	1	0	20	84	Gr.	3	7	15	25
60	Gr.	11	5	7	23		1st	3	3	2	8
	1st	11	3	0	14	86	Gr.	9	2	4	15
62	Gr.	0	0	0	0		1st	4	4	5	13
	1st	0	0	0	0	88	Gr.	5	5	5	15
64	Gr.	6	2	3	11		1st	4	2	1	7
	1st	22	0	0	22	90	Gr.	6	6	5	17
66	Gr.	7	2	4	13		1st	10	4	4	18
	1st	11	6	5	22	92	Gr.	10	0	0	10
68	Gr.	9	6	5	20		1st	6	4	3	13
	1st	15	0	0	15	94	Gr.	11	4	1	16
70	Gr.	14	2	1	17		1st	4	5	6	15

SECOND STREET.

No.	Floor.	Men.	Women.	Children.	Total.	No.	Floor.	Men.	Women.	Children.	Total.
1	Gr.	9	7	8	24	13	Gr.	16	0	0	16
	1st	18	0	0	18		1st	8	3	2	13
	2nd	14	5	8	27		2nd	6	3	0	9
3	Gr.	10	8	5	23	15	Gr.	11	2	1	14
	1st	6	3	3	12		1st	14	3	2	19
	2nd	10	7	5	22		2nd	15	0	0	15
5	Gr.	8	6	9	23	17	Gr.	14	3	9	26
	1st	8	8	5	21		1st	14	0	0	14
	2nd	16	3	5	24		2nd	16	0	0	16
7	Gr.	11	5	10	26	19	Gr.	17	5	2	24
	1st	13	4	1	18		1st	10	5	4	19
	2nd	18	0	0	18		2nd	8	7	5	20
9	Gr.	12	0	0	12	21	Gr.	2	6	6	14
	1st	12	3	1	16		1st	15	4	5	24
	2nd	14	0	0	14		2nd	15	1	1	17
11	Gr.	10	2	7	19	23	Gr.	12	3	4	19
	1st	9	7	7	23		1st	11	4	3	18
	2nd	6	2	2	10		2nd	8	4	6	18

Second Street—continued.

No.	Floor.	Men.	Women.	Children.	Total.	No.	Floor.	Men.	Women.	Children.	Total.
25	Gr.	11	3	2	16	67	1st	6	8	2	16
	1st	6	3	4	13	69	Gr.	9	0	0	9
27	Gr.	8	4	9	21		1st	12	1	2	15
	1st	9	4	6	19	71	Gr.	8	0	2	10
29	Gr.	6	3	4	13		1st	10	4	4	18
	1st	5	3	2	10	73	Gr.	15	3	6	24
31	Gr.	10	3	4	17		1st	10	6	2	18
	1st	6	5	2	13	75	Gr.	13	1	2	16
33	Gr.	12	0	0	12		1st	3	5	2	10
	1st	18	3	1	22	77	Gr.	8	0	0	8
35	Gr.	15	3	0	18		1st	1	4	5	10
	1st	16	2	2	20	87	Gr.	0	0	0	0
37	Gr.	12	1	0	13		1st	12	1	3	16
	1st	3	8	4	15		2nd	13	1	3	17
39	Gr.	9	1	4	14		3rd	11	6	3	20
	1st	16	3	3	22	89	Gr.	3	3	0	6
41	Gr.	6	2	6	14		1st	6	5	6	17
	1st	8	7	6	21		2nd	12	4	1	17
43	Gr.	12	7	2	21		3rd	12	4	5	21
	1st	6	7	3	16	91	Gr.	6	0	1	7
45	Gr.	2	4	8	14		1st	8	5	3	16
	1st	10	3	2	15	93	Gr.	8	4	2	14
47	Gr.	4	2	4	10		1st	12	5	5	22
	1st	11	2	2	15	95	Gr.	13	3	5	21
49	Gr.	10	4	1	15		1st	10	3	4	17
	1st	7	5	7	19	97	Gr.	3	1	1	5
51	Gr.	8	3	2	13		1st	5	5	8	18
	1st	8	4	6	18	99	Gr.	10	7	10	27
53	Gr.	14	0	0	14		1st	8	7	10	25
	1st	7	2	7	16	101	Gr.	9	6	14	29
55	Gr.	7	4	3	14		1st	9	5	7	21
	1st	7	5	8	20	103	Gr.	12	4	4	20
61	Gr.	0	0	0	0		1st	10	9	8	27
	1st	0	0	0	0	105	Gr.	16	4	7	27
63	Gr.	10	1	0	11		1st	10	8	6	24
	1st	8	4	1	13	107	Gr.	7	8	10	25
65	Gr.	7	0	0	7		1st	10	7	3	20
	1st	9	4	1	14	109	Gr.	2	1	1	4
67	Gr.	4	6	2	12		1st	1	1	6	8

Second Street—continued.

No.	Floor.	Men.	Women.	Children.	Total.	No.	Floor.	Men.	Women.	Children.	Total.
2	Gr.	8	0	1	9	8	Gr.	8	9	4	21
4	Gr.	9	0	0	9		1st	6	6	4	16
6	Gr.	5	6	3	14		2nd	9	4	4	17
	1st	8	2	1	11	10	Gr.	13	6	3	22
	2nd	9	1	0	10		1st	12	7	3	22
							2nd	10	4	4	18

Second Street—continued.

No.	Floor.	Men.	Women.	Children.	Total.	No.	Floor.	Men.	Women.	Children.	Total.
12	Gr.	9	0	0	9	50	Gr.	7	0	0	7
	1st	0	0	0	0		1st	8	0	0	8
	2nd	0	0	0	0		2nd	15	2	0	18
14	Gr.	7	0	0	7		3rd	3	4	2	9
	1st	8	10	2	20	52	Gr.	9	3	2	14
	2nd	3	5	6	14		1st	10	2	2	14
16	Gr.	9	7	9	25		2nd	11	1	2	14
	1st	10	4	2	16		3rd	2	3	0	5
	2nd	9	0	1	10	54	Gr.	13	0	0	13
18	Gr.	9	0	2	11		1st	3	6	3	12
	1st	6	4	2	12		2nd	9	6	1	16
	2nd	2	4	2	8		3rd	10	4	1	15
20	Gr.	8	6	2	16	56	Gr.	10	0	0	10
	1st	6	4	6	16		1st	5	4	4	13
	2nd	9	4	6	19		2nd	0	0	0	0
22	Gr.	7	2	2	11		3rd	18	0	0	18
	1st	5	5	5	15	58	Gr.	14	0	1	15
	2nd	4	3	4	11		1st	13	5	1	19
24	Gr.	6	5	5	16		2nd	8	3	2	13
	1st	12	4	1	17		3rd	11	1	3	15
	2nd	9	1	4	14	60	Gr.	16	0	0	16
26	Gr.	3	7	9	19		1st	8	1	3	12
	1st	1	3	1	5		2nd	5	4	3	12
	2nd	0	0	0	0		3rd	8	2	2	12
28	Gr.	3	0	0	3	62	Gr.	12	0	0	12
	1st	5	8	3	16		1st	12	1	1	14
	2nd	14	2	1	17		2nd	10	3	3	16
30	Gr.	10	0	0	10		3rd	0	0	0	0
	1st	5	5	6	16	64	Gr.	1	4	0	5
	2nd	6	6	4	16		1st	3	5	1	9
32	Gr.	6	4	4	14		2nd	14	4	4	22
	1st	8	3	3	14		3rd	0	0	0	0
	2nd	14	1	4	19	66	Gr.	9	5	5	19
34	Gr.	10	5	2	17		1st	12	5	3	20
	1st	10	5	3	18		2nd	12	3	3	18
	2nd	0	0	0	0		3rd	14	8	2	25
36	Gr.	8	0	0	8	68	Gr.	8	1	3	12
	1st	0	0	0	0		1st	8	3	4	15
	2nd	0	0	0	0		2nd	8	9	3	20
38	1st	8	0	0	8		3rd	15	0	0	15
40	Gr.	9	7	4	20	70	Gr.	9	2	5	16
	1st	16	1	1	18		1st	5	4	4	13
42	Gr.	17	5	0	22		2nd	12	4	0	16
	1st	0	0	0	0		3rd	0	0	0	0
44	Gr.	4	2	7	13	72	Gr.	8	0	0	8
	1st	7	3	4	14		1st	10	3	4	17
46	Gr.	6	0	0	6		2nd	10	9	4	23
	1st	10	8	8	26		3rd	0	0	0	0
48	Gr.	7	0	0	7	74	Gr.	0	0	0	0
	1st	2	2	1	5		1st	4	6	2	11
	2nd	7	3	2	12		2nd	0	0	0	0
	3rd	4	2	2	8		3rd	0	0	0	0

Second Street—continued.

No.	Floor.	Men.	Women.	Children.	Total.	No.	Floor.	Men.	Women.	Children.	Total.
76	Gr.	0	0	0	0	84	1st	12	0	0	12
	1st	11	4	8	23	86	Gr.	9	0	0	9
	2nd	0	0	0	0		1st	9	6	2	17
	3rd	0	0	0	0	88	Gr.	7	5	3	15
78	Gr.	10	0	0	10		1st	3	6	2	11
	1st	6	4	2	12	90	Gr.	0	0	0	0
80	Gr.	10	0	0	10		1st	5	9	3	17
	1st	10	5	3	18	92	Gr.	0	0	0	0
82	Gr.	1	2	1	4		1st	0	0	0	0
	1st	5	5	6	16	94	Gr.	13	2	4	19
84	Gr.	0	0	0	0		1st	9	5	5	19

TAP SING LANE.

No.	Floor.	Men.	Women.	Children.	Total.	No.	Floor.	Men.	Women.	Children.	Total.
1	Gr.	0	0	0	0	5	Gr.	9	1	0	10
	1st	11	1	0	12		1st	7	4	2	13
	2nd	0	0	0	0		2nd	7	5	4	16
2	Gr.	9	4	1	14	6	Gr.	9	1	0	10
	1st	7	4	2	13		1st	9	7	5	21
	2nd	0	0	0	0		2nd	0	0	0	0
3	Gr.	5	6	2	13	7	Gr.	12	7	4	23
	1st	0	0	0	0		1st	10	3	3	16
	2nd	0	0	0	0		2nd	11	3	3	17
4	Gr.	10	5	3	18	8	Gr.	0	0	0	0
	1st	8	6	0	14		1st	0	0	0	0
	2nd	5	3	2	10		2nd	0	0	0	0

YUM FUK LANE.

No.	Floor.	Men.	Women.	Children.	Total.	No.	Floor.	Men.	Women.	Children.	Total.
1	Gr.	5	0	0	5	2	Gr.	12	2	2	16
	1st	7	4	7	18		1st	0	0	0	0
3	Gr.	7	5	2	14	4	Gr.	9	0	0	9
	1st	2	4	2	8		1st	14	0	0	14
5	Gr.	7	5	5	17	6	Gr.	15	0	0	15
	1st	6	4	7	17		1st	0	0	0	0
7	Gr.	4	2	7	13	8	Gr.	6	7	5	18
	1st	0	0	0	0		1st	15	0	0	15
9	Gr.	12	3	0	15	10	Gr.	7	5	3	15
	1st	3	3	4	10		1st	10	0	4	14

SHUNG FUNG LANE.

No.	Floor.	Men.	Women.	Children.	Total.	No.	Floor.	Men.	Women.	Children.	Total.
1	Gr.	6	0	2	8	13	1st	4	5	5	14
	1st	0	0	0	0	14	Gr.	0	0	0	0
3	Gr.	5	6	1	12		1st	10	3	3	16
	1st	0	0	0	0	15	Gr.	5	5	1	11
4	Gr.	4	3	5	12		1st	3	4	4	11
	1st	8	2	2	12	16	Gr.	3	2	2	7
5	Gr.	8	5	2	15		1st	10	2	0	12
	1st	5	1	1	7	17	Gr.	2	6	7	15
6	Gr.	5	2	1	8		1st	2	5	5	12
	1st	9	4	8	21	18	Gr.	7	4	5	16
7	Gr.	5	0	0	5		1st	4	4	4	12
	1st	9	2	0	11	19	Gr.	3	1	0	4
9	Gr.	3	2	4	9		1st	3	3	1	7
	1st	4	5	2	11	20	Gr.	7	4	5	16
10	Gr.	8	3	1	12		1st	4	5	4	13
	1st	8	3	2	13	21	Gr.	0	0	0	0
13	Gr.	13	1	0	14		1st	7	0	0	7

ON WAI LANE EAST.

No.	Floor.	Men.	Women.	Children.	Total.	No.	Floor.	Men.	Women.	Children.	Total.
1	Gr.	10	4	6	20	3	Gr.	19	1	0	20
	1st	7	6	3	16		1st	0	0	0	0
2	Gr.	0	0	0	0	4	Gr.	7	7	5	19
	1st	0	0	0	0		1st	6	1	0	7

ON WAI LANE WEST.

No.	Floor.	Men.	Women.	Children.	Total.	No.	Floor.	Men.	Women.	Children.	Total.
1	Gr.	9	0	0	9	4	Gr.	5	4	2	11
	1st	2	2	0	4		1st	3	4	0	7
	2nd	22	3	0	25		2nd	11	2	1	14
2	Gr.	8	2	0	10	3	Gr.	10	4	1	15
	1st	6	1	1	8		1st	4	3	1	8
	2nd	15	3	4	22		2nd	10	2	7	19

WAI ON LANE.

No.	Floor.	Men.	Women.	Children.	Total.	No.	Floor.	Men.	Women.	Children.	Total.
1	Gr.	0	0	0	0	8	Gr.	7	6	0	13
	1st	0	0	0	0		1st	9	5	4	18
3	Gr.	11	3	8	22	6	Gr.	6	9	4	19
	1st	8	5	6	19		1st	8	0	0	8
5	Gr.	12	4	1	17	4	Gr.	9	0	2	11
	1st	6	6	4	16		1st	5	5	8	18
7	Gr.	6	7	2	15	2	Gr.	8	6	6	20
	1st	4	4	8	16		1st	0	0	0	0

CENTRE STREET.

No.	Floor.	Men.	Women.	Children.	Total.	No.	Floor.	Men.	Women.	Children.	Total.
43	Gr.	16	0	0	16	46	2nd	12	3	0	15
	1st	9	7	8	24	47	Gr.	6	0	0	6
45	Gr.	13	0	3	16		1st	16	1	0	17
	1st	11	5	3	19	48	Gr.	12	0	0	12
46	Gr.	12	0	1	13		1st	8	7	5	20
	1st	10	4	5	19		2nd	6	0	0	6

The total number of men, women and children are as follows:—

Men	...	...	...	...	...	...	4,600
Women	...	...	...	...	...	...	1,686
Children	...	...	...	...	...	...	1,415
Grand Total							7,701

I have, &c.,

T H. GIDLEY,

Detective Inspector.

To His Excellency

Sir Henry A. Blake, G.C.M.G.

APPENDIX E.

Name.	Age.	Sex.	Occupation.	Street.	No.	Floor.	Dimensions.	Occupants.	When reported Sick.	Since when.	Plague.	Date of Death.	Recovery.	Remarks.
Chan Koo ..	30	M.	Rattan worker..	Sheung Fung Lane.	16	1st	24'x13'3"x9'8"	12	24-4-03	—	Yes.	24-4-03	—	
Yuen Fong ..	23	F.	Married woman	On Wai Lane..	3	"	30'8"x13'9"x16'6"	15	26-4-03	24-4-03	"	—	Yes.	
Wong Tak ..	52	M.	Coolie ..	Second Street..	44	"	30'3"x13'8"x16'4"	14	30-4-03	"	"	1-5-03	—	
Lai Chun ..	24	M.	Hawker ..	Sheung Fung Lane.	21	Gd.	24'x13'3"x9'10"	—	1-5-03	"	No.	—	Yes.	
Chang King ..	5	F.	Child ..	Tak Sing Lane	6	1st	30'6"x13'9"x10'6"	21	3-5-03	1-5-03	Yes.	4-5-03	—	
Kwok Yung ..	58	M.	Coolie ..	Sheung Fung Lane.	8	"	24'x13'3"x9'8"	4	6-5-03	"	"	6-5-03	—	
Cha Chun ..	28	M.	Coolie ..	Sheung Fung Lane.	8	Gd.	24'x13'3"x9'10"	8	7-5-03	—	"	8-5-03	—	
Li Nga ..	13	F.	Girl ..	Sheung Fung Lane.	4	1st	24'x13'3"x9'8"	12	11-5-03	10-5-03	"	11-5-03	—	
Chan Po ..	64	M.	Head coolie ..	Second Street..	80	"	28'10"x13'1"x13'5"	18	12-5-03	4-5-03	"	14-5-03	—	
Leung Sin ..	33	F.	Married woman	Sheung Fung Lane.	4	Gd.	24'x13'3"x9'10"	12	12-5-03	11-5-03	"	—	Yes.	
Un Kam Sze ..	23	F.	Married woman	Sheung Fung Lane.	3	1st	24'x13'3"x9'8"	9	14-5-03	12-5-03	"	18-5-03	—	
Chu Kum ..	52	M.	Hawker ..	Second Street..	76	Gd.	28'10"x13'1"x13'5"	—	"	13-5-03	"	15-5-03	—	Removed from No. 4, Sheung Fung Lane, to No. 76, Second Street, on the 12th May, 1903. (Observation house.)
Wong Sam ..	28	F.	Married woman	Second Street..	74	"	28'10"x13'1"x13'5"	—	16-5-03	15-5-03	"	20-5-03	—	Removed from No. 4, Sheung Fung Lane, ground floor, to No. 76, Second Street, on 12th May, 1903, and from No. 76 to No. 74, Second Street, on the 13th May, 1903.

Li Kan ..	30	F.	Married woman	Sheung Fung Lane, Second Street..	17	Gd.	24' x 13'3" x 9'10"	15	12-5-03	10-5-03	Yes.	14-5-03	—
Foo Lai Chun ..	64	F.	Widow ..	..	80	1st	28'10" x 13'1" x 13'5"	18	19-5-03	14-5-03	"	19-5-03	—
Chung Sam ..	28	M.	Carpenter	Sheung Fung Lane.	22	Gd.	24' x 13'3" x 9'8"	7	"	19-5-03	No.	—	Yes.
Ohan Kum ..	55	M.	Hawker ..	Sheung Fung Lane.	4	"	24' x 13'3" x 9'10"	12	"	"	Yes.	—	Yes
Tong Lum ..	66	M.	Carpenter	Second Street	30	2nd	30' x 13'3" x 14'8"	16	26-5-03	24-5-03	No.	—	—
Choi Koi ..	29	M.	Hawker..	On Wai Lane West.	4	1st	31' x 12'8" x 14'6"	8	29-5-03	23-5-03	Yes.	1-6-03	—
Chung Yuen ..	23	F.	Married woman	Third Street ..	94	"	32'4" x 11'11" x 16'11"	15	31-5-03	26-5-03	"	"	—
Cheung Chung ..	13	M.	Schoolboy	Second Street	103	Gd.	41'3" x 17'2" x 15'1"	27	1-6-03	29-5-03	"	"	—
Keung Kwan ..	14	F.	Girl ..	Third Street ..	23	"	30' x 14' x 11'5"	18	3-6-03	30-5-03	"	3-6-03	—
Ip Fai ..	36	F.	Seamstress	"	82	"	13'6" x 12'8" x 12'8"	2	3-6-03	2-6-03	"	"	—
Yuen Sum..	63	M.	Coolie ..	"	40	1st	36' x 13'8" x 14'	13	4-6-03	2-6-03	"	4-6-03	—
Li Kwai ..	78	M.	"	Second Street	71	Gd.	32' x 11'8" x 11'2"	10	5-6-03	3-6-03	"	5-6-03	—
Cheong Idi..	35	M.	"	"	56	3rd	27'5" x 13' x 11'9"	18	5-6-03	4-6-03	"	"	—
Chan Ngan ..	22	F.	Married woman	"	54	2nd	27'5" x 13' x 11'9"	16	5-6-03	2-6-03	No.	8-6-03	Yes.
Mok Chan..	20	F.	"	"	5	Gd.	39'2" x 13'8" x 15'8"	23	6-6-03	1-6-03	Yes.	—	Yes.
Leung Li ..	33	M.	Boatman ..	Third Street ..	55	1st	34'10" x 13'7" x 16'6"	14	6-6-03	5-6-03	No.	—	—
Wong King ..	25	M.	Coolie ..	Centre Street..	46	2nd	39' x 15'10" x 10'5"	15	8-6-03	7-6-03	"	—	"
Man Ping ..	55	M.	"	Second Street	73	Gd.	32' x 11'8" x 11'2"	24	11-6-03	9-6-03	"	—	—
So Ki ..	57	M.	Rattan worker..	Tak Sing Lane	6	2nd	30'6" x 13'9" x 13'2"	21	13-6-03	7-6-03	Yes.	17-6-03	—
Chi Ying Cheung	2	M.	Child ..	Third Street ..	60	1st	34'7" x 16'5" x 18'10"	14	14-6-03	13-6-03	"	14-6-03	—
Keung Chi Wo	20	F.	Broom maker ..	"	30	"	33'2" x 11' x 13'2"	13	14-6-03	14-6-03	"	15-6-03	—
Chan Pui ..	16	M.	Cook ..	"	99	Gd.	22'11" x 12'8" x 14'7"	10	17-6-03	16-6-03	"	17-6-03	—
Yuen Fai ..	26	M.	Coolie ..	"	52	1st	36' x 13'8" x 14'	21	19-6-03	18-6-03	"	—	—
Lo Man ..	1	M.	Child ..	Kwok Yin Lane	1	"	29'11" x 12'2" x 16'6"	—	24-6-03	21-6-03	No.	20-6-03	—
Lan Hing ..	59	M.	Coolie ..	Third Street ..	50	"	36' x 13'8" x 14'	14	27-6-03	26-6-03	Yes.	29-6-03	—
Lai Chu ..	11	M.	Schoolboy	Second Street	109	"	41'3" x 17'2" x 15'1"	8	7-7-03	6-7-03	"	7-7-03	—
Lai Tak ..	5	M.	"	"	67	2nd	26'2" x 13'4" x 13'5"	17	26-5-03	23-5-03	"	20-5-03	—
Chan Lung ..	17	M.	Coolie ..	Third Street..	73	1st	29'5" x 12' x 15'5"	18	25-5-03	25-5-03	"	—	—
A Lum ..	44	M.	"	Second Street	107	"	41'3" x 17'2" x 15'1"	9	15-7-03	9-7-03	"	"	—
Foo Chin ..	38	F.	Married woman	"									

Widow of Chan Po, who died at No. 80, Second Street, on 14th May, 1903.

This is the uncle of Lung Sin who resided on the same floor and also recovered. Tung Wha removed to Hospital

} These two brothers were still under doctor's attendance.

APPENDIX F.

KENNEDY TOWN HOSPITAL.
*Plague Cases, 1903 (to 6th July).*BEFORE CARBOLIC ACID WAS USED.
(In the first half of the Epidemic.)

—			Cases.	Cured.	Convalescent. ^o	Deaths.	Mortality.
							Per cent.
Europeans	2	1	—	1	50·0
Portuguese	—	—	—	—	—
Chinese	123	15	2	106	86·2
Other Races	14	2	—	12	85·7
			139	18	2 ^o	119	85·6
				20			

UNDER the USE of CARBOLIC ACID.
(In the second half of the Epidemic.)

—			Cases.	Cured.	Convalescent. ^o	Deaths.	Mortality.
							Per cent.
Europeans	...	...	22	17	4	1	4·5
Portuguese	...	...	1	1	—	—	0·
Chinese	...	...	80	31	3	46	57·5
Other Races	...	...	40	20	15	5	12·5
			143	69	22 ^o	52	36·4
				91			

Throughout the Epidemic (to 6th July).

—			Cases.	Cured.	Convalescent. ^o	Deaths.	Mortality.
							Per cent.
Europeans	...	...	24	18	4	2	8·33
Portuguese	...	...	1	1	—	—	0·
Chinese	...	...	203	46	5	152	74·88
Other Races	...	...	54	22	15	17	31·48
			282	87	24 ^o	171	60·64
				111			

^o Of those classed as "convalescent" on 6th July, most have since been discharged, none have died, and those remaining are all doing well, so the column "convalescent" may be conjoined with the column "cured."

APPENDIX G.

RETURN shewing the NUMBER of RATS KILLED each MONTH this YEAR, and the PROPORTION of PLAGUE RATS found among them.

Month.	Total Rats.	Total Infected Rats.	Remarks.
January	14,427	115	0·8
February	14,718	272	1·8
March	16,513	593	3·6
April	15,004	482	3·2
May	15,228	865	5·6
June	9,882	879	9·0

APPENDIX H.

(*Translation.*)

DEAR MR. FUNG WA CHUN,

We beg to state that, in May this year, His Excellency the Governor and you having sympathy with the hardship of the people and pity in your hearts, have honoured us by taking the whole house of No. 83, Third Street and the ground floor of No. 1, Tak Sing Lane and turning them into hospitals and baths for the poor in First, Second and Third Streets. As to the rents from May last to the present time we not only dare not accept them but we appreciate highly the careful way in which His Excellency and you did the cleansing work, with care and timely forethought tending the wounds of the people and allowing no detail to escape attention. Since the work has been done the plague in that district diminished gradually and has died out entirely at the present time.

We find that the people of that place are now living happily in their homes and pursuing heartily their business. They will never forget the kindness done to them. All this is due to His Excellency's and your merit in looking after the people with care and no avoidance of trouble. No virtue is of greater value than this. You are requested to translate this into English and submit it to His Excellency. This is our earnest request. We now intend to let out the houses to other people and we feel it our duty to report it. This is to inform you and enquire after your health.

Yours faithfully,

YÜ SHAN TIN.

WANG TSUN SHANG.

Hong Kong, 28th July, 1903.

APPENDIX I.

Extermination of Plague Bacilli in Vermin.

Honourable COLONIAL SECRETARY,

I should like to know how long bugs, fleas, spiders, &c., will live in a five per cent. solution of Jeyes's Fluid. This affects the question of disinfection, for as the plague bacillus is found in these vermin it is evident that no disinfection that does not kill the vermin will reach the bacillus.

H. A. B.

14-7-03.

Government Public Mortuary,

14th August, 1903.

SIR,—I have the honour to submit the following Report on the question as to how long bugs survive in a solution of Jeyes's Fluid, for the information of His Excellency the Governor. Attached is a detailed account of the experiments performed.

From these experiments I venture to draw the following conclusions:—

1. It is obvious that Jeyes's Fluid of such a concentration as used in Series *A* and *B* is not of much practical value.
2. The killing power of Jeyes's Fluid as employed in Series *C* and *D* is uncertain, even after 15 minutes.
3. If bugs are to be exterminated with certainty, it is apparent that the concentration of Jeyes's Fluid as employed in Series *E* and *F* must be used.

I have, &c.,

WILLIAM HUNTER.

The Honourable

J. M. Atkinson, M.B.,

Principal Civil Medical Officer,

&c., &c., &c.

THE ACTION OF JEYES'S FLUID ON BUGS.

A. SERIES.

One Part or 1 c.c. of Jeyes's Fluid in 100 c.c. of water.

Experiment No. 1.—Two bugs completely immersed for one minute.

After removal from the solution, the animals appeared to be dead. After five minutes, however, movements of the legs began which were followed 10 minutes later by complete recovery of both animals.

Experiment No. 2.—Two bugs completely immersed for two minutes.

The same phenomena were observed as in Experiment No. 1. Complete recovery of both animals followed in 15 minutes.

Experiment No. 3.—Two bugs completely immersed for five minutes.

The same phenomena were observed as before. Both animals were quite lively in about 15 minutes.

Experiment No. 4.—Two bugs completely immersed for 15 minutes.

After removal from the solution, the animals appeared to be dead and remained in that condition for about 20 minutes.

Complete recovery of both animals took place in about 45 minutes after removal from the solution.

In connection with this (A. Series of Experiments) a few interesting phenomena were noted. Immediately on immersion, the animals shewed vigorous movements of the legs and moved about actively in the fluid. This, in a few seconds, is succeeded by a few convulsive efforts in all the extremities continuing from one to two seconds.

Subsequently all movements ceased.

On expiration of the time limit of the particular experiment, the animals were transferred to a clean, dry glass capsule and frequently examined by a low power microscopic objective. For some considerable time no movements on the part of the animal were detected, *e.g.*, *Experiment No. 1*, for five minutes. At the expiration of this time slight convulsive seizures in the body and extremities commenced; these became gradually more pronounced and eventually more purposive until the animals completely recovered.

Washing the animals in water after immersion in Jeyes's Fluid solution or exposure to the sun accelerates their recovery.

B. SERIES.

Two Parts or 2 c.c. of Jeyes's Fluid in 100 c.c. of water.

Experiment No. 1.—Two bugs completely immersed for one minute.

After removal, the animals appeared to be dead.

Movements of the extremities commenced in about 10 minutes.

Both animals completely recovered in 20 minutes.

Experiment No. 2.—Two bugs completely immersed for five minutes.

After removal, animals remained motionless.

Muscular movements commenced in 15 minutes.

Both animals recovered in 30 minutes.

Experiment No. 3.—Two bugs completely immersed for 15 minutes.

After removal of the animals, the same phenomena were observed.

Muscular movements commenced in 15 minutes.

Both animals completely recovered in 35 minutes.

C. SERIES.

Three parts or 3 c.c. of Jeyes's Fluid in 100 c.c. of water.

Experiment No. 1.—Two bugs completely immersed for one minute.

On removal, same phenomena as before.

Muscular movements began in 15 minutes.

Complete recovery of both animals in 45 minutes.

Experiment No. 2.—Two bugs completely immersed for five minutes.

On removal, same appearances met with as in previous experiments.

Muscular movements began in 30 minutes, in *one* animal. This bug was quite lively after one hour.

The other animal was dead.

Experiment No. 3.—Two bugs completely immersed for five minutes.

Both animals were *dead* on removal from the solution.

The observation extended over four hours.

This series of experiments was repeated with almost similar results.

D. SERIES.

Four Parts or 4 c.c. of Jeyes's Fluid in 100 c.c. of water.

Experiment No. 1.—Two bugs completely immersed for one minute.

After removal, the same phenomena were observed as before.

Both animals were quite lively in 10 minutes.

Experiment No. 2.—Two bugs completely immersed for five minutes.

One of these animals recovered completely after 30 minutes.

The other was dead.

Experiment No. 3.—Two bugs completely immersed for 15 minutes.

One of these bugs was lively after 45 minutes.

The other was dead.

This series of experiments was repeated twice with similar results.

E. SERIES.

Five Parts or 5 c.c. of Jeyes's Fluid in 100 c.c. of water.

Experiment No. 1.—Two bugs completely immersed for one minute.

Both animals, after removal were found *dead*.

Experiment No. 2.—Two bugs completely immersed for five minutes.

After removal, both animals were *dead*.

Experiment No. 3.—Two bugs completely immersed for 15 minutes.

After removal, both animals were *dead*.

This series of experiments was repeated with an exactly similar result. In this experiment, however, two bugs were completely immersed for 30 seconds. One animal recovered after 30 minutes, the other was *dead*.

F. SERIES.

Six Parts or 6 c.c. of Jeyes's Fluid in 100 c.c. of water.

Experiment No. 1.—Two bugs completely immersed for 30 seconds.

Both animals found dead on removal. Observation extended over several hours.

Experiment No. 2.—Two bugs completely immersed for one minute.

Both animals found dead on removal.

Two other experiments were made—namely, immersion for five minutes and 15 minutes respectively, but in both cases the animals were found dead. This series of experiments was repeated several times with prolonged observation, but in every instance, the animals were found dead.

II.

GOVERNOR SIR H. A. BLAKE to MR. CHAMBERLAIN.

Government House, Hong Kong,

21st September, 1903.

SIR,

IN continuation of my Despatch of the 21st ultimo, under cover of which I forwarded copies of a Memorandum on Plague, I have the honour to transmit herewith 20 copies of further minutes bearing on the same subject, from which you will see that many lines of investigation into the nature and causes of the disease are being carried on in this Colony, with interesting and possibly instructive results.

I have, &c.,

HENRY A. BLAKE,

Governor, &c.

CULTURE OF THE PLAGUE BACILLUS, &c.

GOVERNMENT BACTERIOLOGIST,

I AM directed by the Governor to request you to ascertain by experiment how long a culture of the plague bacillus can be maintained in agar-agar, or other suitable media, in a room at the ordinary temperature, such growth not to be exposed to the sunlight.

J. M. A.

27-7-03.

Government Public Mortuary,

26th August, 1903.

SIR,—*Re* His Excellency the Governor's query as to the length of life of the *B. pestis* on agar-agar.

I have the honour to report for His Excellency the Governor's information that the experiment has been started.

I am afraid, however, that a considerable time must elapse before any definite conclusion can be arrived at—at least *several years*.

From an examination of the literature on the life of *B. pestis hominis* in pure culture, one finds that the life of the organism varies within wide limits. Schultz (Cent. f. Bakt. Bd. xxix, No. 5, 1901), Rowland and others have found the *B. pestis* alive and virulent in four-year old cultures, *i.e.*, if these be protected from sunlight and kept in a cool place. This long term of life is probably favoured by a shrinking and thickening of bacterial protoplasm. There is no question of spore formation (Archiv. des Sciences Biologiques, 1901).

I have, &c.,

WILLIAM HUNTER.

The Honourable

J. M. Atkinson, M.B.,

Principal Civil Medical Officer.

Minute by His Excellency the Governor.

This answers the question as to possible continuance of virulence of the *B. pestis* in human beings over a dormant season, but I am afraid that I did not convey my meaning correctly to the Principal Civil Medical Officer.

What I should like to see subjected to bacteriological examination is, not simply whether the *B. pestis* will survive, and how long; I want to know, or rather I suggest to Dr. Hunter that it would be valuable to Science to know, the conduct of a culture over a whole period of a year.

Given a culture in a large quantity of agar-agar—so large a quantity that the bacillus has the most ample opportunity of propagation continuously—will the *B. pestis* continue to propagate uninterruptedly, the conditions being favourable, or will it, as would a vegetable seed, lie dormant for a time and then at the recurring period of the year again actively propagate? (2) It will be equally valuable to know, whether during the dormant time—if there be, as I assume, a dormant time—the *B. pestis* is virulent. All this would be determined in one year.

Dr. Hunter will know from the books if such an experiment has been tried, but I should prefer one experiment made now by Dr. Hunter to any published account. I do not forget that at the meeting of medical men at Government House, authority was quoted for the statement that the *B. pestis* was rarely found in the blood save immediately before death. Yet Doctors Atkinson, Thomson and Bell knew from experience that this is not so.

Two other lines of investigation I would suggest if they have not already been entered upon. (1) Has the *breath* of a patient suffering from pneumonic plague been thoroughly examined for *B. pestis*? (2) Has the *sudor* of a plague patient been so examined, and if so, with what result? The first question is important from the point of view of contagion, the second as bearing upon the general infection of clothing.

H. A. B.

31-8-03.





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